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(54) A spot welding gun and a gun accessory

(57) A spot welding rod for resistance welding of object comprises a rod (2) which is moveable axially, and two electrode arms (10, 11) provided with electrodes (12, 13), wherein the electrodes face towards each other and the welding gun is adapted to press together objects to be welded located between the electrodes by axial movement of the rod, and to allow welding current to flow between the electrodes. The rod axis extends in a direction which is generally perpendicular to the directions of the electrodes and at least one of the electrode arms is piv-

otally mounted. The welding gun includes structural elements (14-19; 51-54; 14, 16, 17, 72) which are connected operatively to said at least one pivotally mounted electrode arm and said rod. The structural elements are disposed between the point at which said one of the electrode arms is pivotally mounted and said electrodes and mutually engage one another and move transitively relative to each other and therewith force at least one of said electrodes towards the other electrode through the medium of a wedging action as the rod is moved axially.

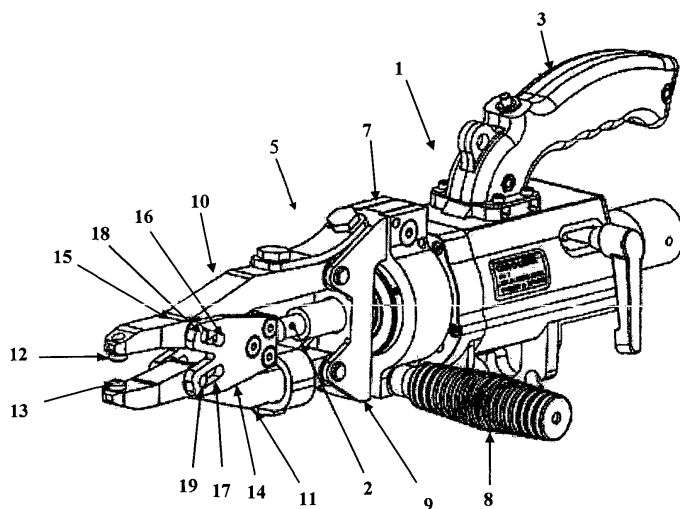


Fig. 1

EP 1 614 496 A3



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EUROPEAN SEARCH REPORT

Application Number
EP 05 44 5059

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2 082 904 A (PODANY EDWARD J) 8 June 1937 (1937-06-08) * figure 1 *	1,2,11	B23K11/31
X	DE 201 07 328 U1 (FESTO AG & CO) 30 August 2001 (2001-08-30) * figure 1 *	1	
A	PATENT ABSTRACTS OF JAPAN vol. 011, no. 258 (M-618), 21 August 1987 (1987-08-21) & JP 62 064481 A (HONGOU SEISAKUSHO:KK), 23 March 1987 (1987-03-23) * abstract *	1-11	
A	PATENT ABSTRACTS OF JAPAN vol. 013, no. 130 (M-808), 30 March 1989 (1989-03-30) & JP 63 299866 A (OHARA KINZOKU KOGYO KK), 7 December 1988 (1988-12-07) * abstract *	1-11	
A	US 6 706 990 B1 (OLSSON GORAN K) 16 March 2004 (2004-03-16) * the whole document *	11	B23K B25B
D,A	US 2 349 835 A (JR. HAROLD A. STRICKLAND,) 30 May 1944 (1944-05-30) * the whole document *	1-11	
D,A	WO 00/15379 A (CAR-O-LINER AB; STENKVIST, SIVERT) 23 March 2000 (2000-03-23) * the whole document *	1-11	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 October 2005	Examiner Caubet, J-S
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

3
EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-11



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-11

Spot welding gun with structural driving elements placed
between pivot axis and electrodes

2. claim: 12

Spot welding gun having both electrode holders pivotally
mounted.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 44 5059

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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06-10-2005

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